



# IPM Practices

City of Madison Parks Division

# History of IPM in Parks

- 2004: Policy of Pest Management on City Property adopted
- 2012: Parks Division Land Management Plan adopted by HSC & BPC



*Garner Park 2012: No Mow areas*



*Garner Park 2012 after extensive beautification work.*

# History of IPM in Parks

- 2014: Athletic Field Leadworker position created to implement standardized IPM program
- 2017: Land Management Plan updated to include Conservation Parks



*Reindahl Park -- 2014 damage as a result of over-use and compacted soils. Very thin turf that is not safe for play.*

# What do we look like today?

- ▶ Parks Division Manages nearly 6,000 acres of land
  - ▶ Over 270 Parks
  - ▶ 21 Conservation parks
  - ▶ Forest Hill Cemetery
  - ▶ Mall Concourse (over 6 miles of walks)
  - ▶ Four (4) golf courses
  - ▶ Olbrich Botanical Gardens
  - ▶ 90,000+ street trees
  - ▶ The majority of turf medians across city
  - ▶ Other City-owned greenspaces and greenways.

Area	Total Acres
General Park Land	3,140
Conservation Park Land	1,700
Olbrich Botanical Gardens	16.4
Cemetery	94
Golf	749



# What rules/policies influence our work?

- ▶ State of WI DNR
  - ▶ WDNR NR 40 (Wisconsin Administration Code Chapter NR 40 – Invasive Species Rule)
  - ▶ WDNR 1004 (Native species requirements for Bioretention devices)
  - ▶ Section 30.12 Wis. Stats and Chapter NR 328-Subchapter 1, Wis. Adm. Code (Requires native plantings for biostabilization when reconstructing shorelines)



# What rules/policies influence our work?

- ▶ City of Madison
  - ▶ Zoning Code Chapter 28.04 (parking lot landscaping)
  - ▶ Noxious Weed Ordinance (MGO 23.29)
  - ▶ Infected Elm, Oak or Ash Trees Declared as Nuisance Ordinance (MGO 23.40)
  - ▶ City of Madison Policy of Pest Management on City Property
  - ▶ Emerald Ash Borer Plan



# What else drives our work?

- ▶ Parks Division's Land Management Plan
- ▶ 2018-2023 Park & Open Space Plan
- ▶ User/Operating Agreements with various community groups/partners
- ▶ Park user expectations



# What are key objectives of Parks' land management?

- ▶ Balance competing needs and demands of diverse user groups, constituents and policy makers in all services provided
- ▶ Ensuring safety of park users
- ▶ Responsible stewardship practices to protect environment, including awareness and focus on pollinator protection



# What is IPM?

According to Environmental Protection Agency:

“Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.”

- ▶ Recognized IPM steps:
  - ▶ Set Action Thresholds
  - ▶ Monitor and Identify Pests
  - ▶ Prevention
  - ▶ Control
  
- ▶ Parks' Land Management Plan operationalized through IPM Principles

# Set Action Thresholds

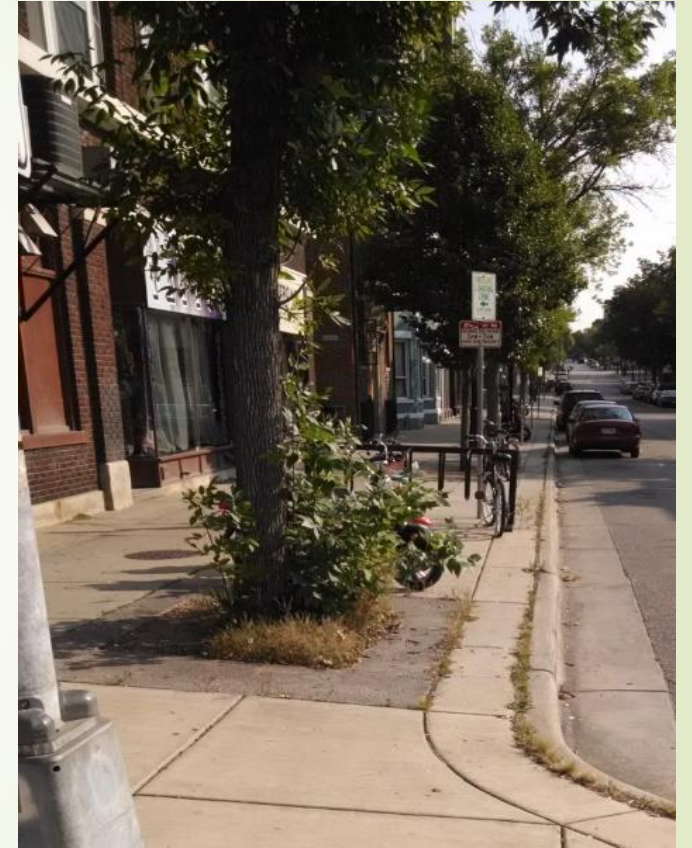
- ▶ General Parks
  - ▶ General Parks Turf: High tolerance for weeds (shelters, playgrounds, etc)
  - ▶ Athletic Fields
    - ▶ Fields identified by sport and level of play (Adult Ultimate Frisbee vs Youth Soccer)
    - ▶ Higher tolerance for weeds on youth fields
    - ▶ Higher tolerance for weeds on adult open fields than fenced fields
  - ▶ Planting beds/natural areas
    - ▶ Depends on location and degree of development
    - ▶ High tolerance for “Weeds” beneficial to pollinators



*Goodman Pool planting bed serves as a waystation for Monarchs.*

# Set Action Thresholds

- ▶ Conservation
  - ▶ Focus resources on high value native habitats
  - ▶ High quality natives=low tolerance
  - ▶ Low value, unrestored land= high tolerance
- ▶ Mall Concourse
  - ▶ Low tolerance in hardscapes & landscapes
  - ▶ Low-Moderate tolerance in turf islands
- ▶ Forest Hill Cemetery
  - ▶ High tolerance in turf
  - ▶ Low tolerance in mausoleum



*Gilman St Walks 2015*

# Set Action Thresholds

- ▶ Forestry
  - ▶ Low for pests that threaten health of urban forest
  - ▶ High for cosmetic damage
- ▶ Olbrich
  - ▶ Low tolerance for pests in gardens & conservatory
  - ▶ Moderate tolerance for weeds in turf areas



*Serenity Garden meadow*

# Set Action Thresholds

- ▶ Golf (Lowest to highest tolerance in order)
  1. Putting greens
  2. Tee areas
  3. Fairways
  4. Regularly mowed areas
  5. Naturalized Areas



*Yahara Hills*

# Monitor & ID Pests

- ▶ General Parks
  - ▶ Athletic Fields twice yearly scouting
  - ▶ Field Mowing mapping/rotation, weed ID Manual
  - ▶ Landscaped beds regular rotation
- ▶ Conservation
  - ▶ Regular visits to parks, scout areas under restoration
  - ▶ Loosestrife: monitoring each season, hand pull
- ▶ Forestry
  - ▶ EAB branch sampling
  - ▶ Utilize UW Entomology & Plant Path Labs
  - ▶ Gypsy moth yearly population mapping/assessment



*EAB galleries found during inspection of Ash tree.*

# Monitor & ID Pests

- ▶ Olbrich Botanical Gardens
  - ▶ Conservatory & production greenhouses inspected daily
  - ▶ Gardeners assigned to each garden area
- ▶ Golf Courses
  - ▶ Regular monitoring by Greenskeepers
  - ▶ Direct monitoring (Japanese Beetle traps)
  - ▶ Scouting for Visual Damage
  - ▶ Predictive Modeling tools (Degree Day Calendars)



*Direct observation of course indicated animals feeding on grubs*

# Prevention

- ▶ General Parks
  - ▶ Athletic fields regular aerification, overseeding, fertilization.
    - ▶ Field rotation updated yearly
    - ▶ Field orientation to distribute wear
    - ▶ Athletics Rain-out Policy
    - ▶ Regular raking of clay/sand
  - ▶ No mow/Managed Prairie Meadows
    - ▶ Repeated mowing
    - ▶ Hand cut/remove brush
  - ▶ Landscape Beds/Playgrounds
    - ▶ Hand weeding
    - ▶ Replenish mulch
    - ▶ Removal of organic material each season
  
- ▶ Conservation Parks
  - ▶ Prescribed burn is most effective tool
  - ▶ Brush/Forestry Mowing



Riendahl Park -- 2015 following comprehensive renovation program.



# Prevention

## ► Mall Concourse

- Intensive Turf Program (aerification 2x per year, gypsum application, fertilizer application, compost over seeding and monitoring of irrigation program).



*Severely damaged Mall turf*



*Mall Staff applies compost*



*Turf following extensive repairs*

## ► Forest Hill Cemetery

- Extensive Capital Improvements to Mausoleum to reduce moisture, improve ventilation. Two dehumidifiers constantly in operation.
- Installing door sweeps to keep insects out

# Prevention

- ▶ Forestry
  - ▶ Species Diversification is key
    - ▶ No more than 10% of any 1 species
    - ▶ No more than 20% of any 1 genus
    - ▶ No More than 30% of any 1 family
    - ▶ Currently use 20 different families & 57 different genus of trees
  - ▶ “Right tree for Right location”
  - ▶ Proper pruning techniques
  - ▶ Inspection of nursery stock



*This log contains a hive from a street tree that was carefully removed and wrapped to protect the honeybees.*

# Prevention

- ▶ Olbrich Botanical Gardens
  - ▶ Introduction of gravel gardens
    - ▶ Drought tolerant, lower maintenance native plantings
  - ▶ Remove plants from collections that require significant inputs (former Rose Garden)
  - ▶ Vigorous washing of plants in Bolz Conservatory



*Gravel Gardens at entrance to Olbrich Botanical Gardens.*

*Concept has also been introduced at Goodman Pool and Mall Concourse*



# Prevention

- ▶ Golf Courses
  - ▶ Introducing disease resistant cultivars when renovating areas
  - ▶ Mowing at highest desired height possible
  - ▶ Topdressing with sand
  - ▶ Rolling
  - ▶ Regular irrigation and fertilizer
  - ▶ Aerification

# Control

- ▶ General Parks

- ▶ Athletic Fields

- ▶ Broadleaf herbicide applications—not to eliminate all weeds, but to control them in order to have acceptable playing surface for intended purpose.
    - ▶ ONLY playing surface is treated—NOT entire park
    - ▶ Youth fields not sprayed until play has finished for the season—every 2-3 year rotation
    - ▶ Adult fields timed to provide for maximum amount of time field is not in play

- ▶ Landscape beds/hard surfaces/fencelines

- ▶ Hand weeding wherever possible
    - ▶ String trimming
    - ▶ Spot/targeted treatment when needed

- ▶ No mow & Managed Meadow Prairie Areas

- ▶ Cut stump treatments
    - ▶ Follow-up foliar applications of resprouts



Goodman Pool thistle

# Control

- ▶ Conservation
  - ▶ Prescribed fire
  - ▶ Girdling of trees
  - ▶ Hand removal/manual disruption of root
    - ▶ Hand weeding of Garlic Mustard & Dames Rocket in small numbers
      - ▶ Herbicide application is necessary in larger populations
    - ▶ Spading root effectively controls second year burdock
  - ▶ Cut stump treatments of woody invasives (Honeysuckle, buckthorn)
  - ▶ Some species only controlled through foliar herbicide applications (Japanese Knotweed, Reed Canarygrass)



*Staff conducting prescribed burn at Cherokee Conservation Park*



# Control

- ▶ Mall Concourse
  - ▶ Herbicide last applied to planting bed 2014 to control knotweed when it couldn't be controlled by hand.
  - ▶ Hand weeding, string trimming all planting beds/hard surfaces
  - ▶ Burning of weeds on hard surfaces with small torch
- ▶ Forest Hill Cemetery
  - ▶ No herbicides used on turf
  - ▶ Hand weeding, spot application of herbicides in planting beds
  - ▶ Occasional use of pesticides in mausoleum



# Control

- ▶ Forestry
  - ▶ Response to EAB:
    - ▶ Pre-emptive removal of 8,780 to-date
    - ▶ 10,870 Ash in treatment Cycle
  - ▶ Gypsy Moth
    - ▶ Aerial application of Foray with DNR
    - ▶ Scraping of egg masses where feasible
    - ▶ Horticultural oil application
  - ▶ Removal of infested/infected trees





# Control

- ▶ Olbrich Botanical Gardens
  - ▶ Hand Weeding gardens and lawn areas
  - ▶ Beneficial insects and birds in Bolz Conservatory
  - ▶ Spot broadleaf applications to turf when needed
  - ▶ Fungicide applications to specimen trees
  - ▶ Biologicals where possible



# Control

- ▶ Golf Course
  - ▶ Fungicides as both preventative and curative
    - ▶ Dollar spot, anthracnose, brown patch, pithium, control algae on greens
  - ▶ Crabgrass prevention once per year
  - ▶ Broadleaf applications as needed
  - ▶ Insecticide applications as needed to control grubs
    - ▶ Acelepryn (chlorantraniliprole) as alternative to neonicotinoids and Imidiclopid.
    - ▶ Granular Imidiclopid to reduce particle drift to flying insects
  - ▶ Plant growth regulators



# Pesticides

- ▶ What we DO do:
  - ▶ Balanced use, focus on safety of staff and park users
  - ▶ All employees and volunteers applying pesticides must be properly trained and certified in appropriate DTCAP category (most 3.0 Turf and Landscape)
  - ▶ Follow label precautions
  - ▶ Provide/require use of proper PPE
  - ▶ Post at time of application
  - ▶ Time applications to have least impact/conflict with users
  - ▶ Annual reporting of pesticides used



# Pesticides

- ▶ What we DON'T do:
  - ▶ Broadcast glyphosate on general park lands: all applications are targeted, spot treatments
  - ▶ Use insecticides or fungicides in general park lands, exceptions as follows:
    - ▶ Injections of individual Ash trees through “Adopt-A-Park Tree” program
    - ▶ Spot treatment of wasp/hornets when concern for public safety



# Questions?

Land Management Plan, Pesticide Report or Today's presentation